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| **GUIDED NOTES: Meiosis (Reduction Division)** |
| **TYPES OF REPRODUCTION****ASEXUAL***

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 Examples: Binary Fission, Fragmentation, and Budding**SEXUAL***

http://www.visualphotos.com/photo/1x6346146/binary_fission_7W6403.jpg *

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 | Organisms which reproduce sexually are made up of two different types of cells.1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** Body cells with a diploid number (2N) of chromosomes

Example: **\*\*What process produces somatic cells?** 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** Sex cells with a haploid number (N) of chromosomes

Example: **\*\*What process produces gametes?** |
| **GAMETES**1. **SPERM**
* Male Gamete
*
1. **OVUM** (plural= Ova)
* Female Gamete
*

https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcQCR13NqR-TWZ9y0h4wztS98Qa5uTZkeWtCIL1aMdsFwuBq3C2zfA | **FERTILIZATION****Definition:** * During ovulation, an ovum is released from the ovary and transported to an area where fertilization can occur
* The result of fertilization is a fertilized egg known as a...

**Picture:**  |
| **HOMOLOGOUS CHROMOSOMES*** Pair of chromosomes (maternal & paternal) that is similar in shape & size.
* Homologous pairs (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) carry genes controlling the same inherited traits.
* Each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (position of a gene) is in the same position on homologues.
* Humans have \_\_\_\_\_ pairs of homologous chromosomes.

untitled | \*\*Since a homologous pair of chromosomes consists of 4 chromatids, it is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*\*Each set of homologous chromosomes consists of 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Autosomes***

*

**Sex Chromosomes***

*

**XY=** **XX=** |
| **MEIOSIS*** Process in which a single cell goes through \_\_\_\_\_ nuclear divisions to produce \_\_\_\_\_ haploid gametes
* During meiosis, \_\_\_\_\_ cells are reduced to \_\_\_\_\_\_ cells
* What would happen if meiosis did NOT occur?
 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Egg production in females in which one daughter cells keeps all of the cytoplasm, while the other three receive only genetic material (barr/polar bodies)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Sperm production in males in which cytoplasm and genetic material are divided evenly among the 4 cells; flagella are added after differentiation. |
| **INTERPHASE 1*** Similar to interphase in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Chromosomes replicate (S Phase)
* Centriole pairs replicate
* Nucleus and nucleolus are visible
 | **MEIOSIS 1*** Characterized by the separation of homologous pairs of chromosomes
* 4 stages
1.
2.
3.
4.
 |
| **PROPHASE 1*** Chromosomes condense
* Nuclear envelope disappears
* Spindle forms
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs: Homologous chromosomes pair up to form a tetrad.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: 2 chromosomes or 4 chromatids
* Crossing over occurs
 | **Draw a picture of SYNAPSIS.****CROSSING OVER:** segments of non-sister chromatids break & exchange genetic material creating genetic diversity**Picture:**  |
| **METAPHASE 1***
* Independent Assortment occurs (orientation of homologous pairs to poles is random)
 | **ANAPHASE 1*** Homologues separate & move to opposite poles
 |
| **TELOPHASE 1*** Nuclear envelope usually does NOT reform
* Chromosome # in 2 new cells is now \_\_\_\_\_\_\_\_\_\_ because…
* Cytokinesis may or may not occur
 | **MEIOSIS 2***
* Proceeds just like Mitosis
* Starts & ends with…
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**Time for a little practice…**

**Somatic Cells vs. Gametes:** Determine if the cells below are **SOMATIC (BODY) CELLS** or **GAMETES (SEX) CELLS**. If a cell is a **SOMATIC CELL**, write an **S** in the blank. If a cell is a **GAMETE**, write a **G** in the blank.

|  |  |  |
| --- | --- | --- |
| \_\_\_\_\_ Adenoid Cell | \_\_\_\_\_ Epithelial Cell | \_\_\_\_\_ Zygote |
| \_\_\_\_\_ Ovum | \_\_\_\_\_ Heart Cell | \_\_\_\_\_ Skin Cell |
| \_\_\_\_\_ Pancreas Cell | \_\_\_\_\_ Squamous Cell | \_\_\_\_\_ Gallbladder Cell |
| \_\_\_\_\_ Sebaceous Cell  | \_\_\_\_\_ Cilia Cell | \_\_\_\_\_ Brain Cell |

**Haploid vs. Diploid:** Determine if the cells below are **Haploid** or **Diploid**. If the cell is **Haploid**, write an **H** in the blank. If the cell is **Diploid**, write a **D** in the blank.

|  |  |  |
| --- | --- | --- |
| \_\_\_\_\_ Lip Cell | \_\_\_\_\_ Cuticle Cell | \_\_\_\_\_ Sperm Cell |
| \_\_\_\_\_ Cone Cell | \_\_\_\_\_ Zygote | \_\_\_\_\_ Muscle Cell  |
| \_\_\_\_\_ Ovum | \_\_\_\_\_ Sex Cell | \_\_\_\_\_ Epithelial Cell |

**Sentence Completion:** Circle the answer that best completes the sentences below.

1. Human skin cells are **HAPLOID/DIPLOID**.
2. Human skin cells contain **23/46** chromosomes.
3. Human skin cells are **SOMATIC/GAMETE** cells.
4. Human egg and sperm cells are **HAPLOID/DIPLOID**.
5. Human egg and sperm cells contain **23/46** chromosomes.
6. Human egg and sperm cells are **SOMATIC/GAMETE** cells.
7. After sperm fertilizes an egg, the resulting zygote has **23/46** chromosomes.

**Diagram:** Place the following words in the boxes below: Embryo, Gametes, Zygote. Then write the correct number of chromosomes that should be found in each of the human cells depicted in the diagram.